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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,064	01/09/2002	Jin Yu		1966

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EXAMINER

CURS, NATHAN M

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/041,064	Applicant(s) YU, JIN	
	Examiner Nathan Curs	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 1-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective for the following reasons:

- It does not state that the person making the oath or declaration believes the named inventor or inventors to be the original and first inventor or inventors of the subject matter which is claimed and for which a patent is sought.
- It does not identify the mailing address of each inventor. A mailing address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing address should include the ZIP Code designation. The mailing address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.
- The specification to which the oath or declaration is directed has not been adequately identified. See MPEP § 602.
- It does not state that the person making the oath or declaration has reviewed and understands the contents of the specification, including the claims, as amended by any amendment specifically referred to in the oath or declaration.
- It does not state that the person making the oath or declaration acknowledges the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56.
- The clause regarding "willful false statements ..." required by 37 CFR 1.68 has been omitted.
- It does not identify the citizenship of each inventor.
- It does not identify the city and either state or foreign country of residence of each inventor. The residence information may be provided on either on an application data sheet or supplemental oath or declaration.
- It was not executed in accordance with either 37 CFR 1.66 or 1.68.

Drawings

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2. The drawings are objected to because the blank boxes in the figures should be labeled. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The abstract of the disclosure is objected to because it contains several grammatical errors. Correction is required. See MPEP § 608.01(b).

Claim Objections

4. Claim 1 is objected to because of the following informalities: "see Fig. 1, 2" should be deleted. Appropriate correction is required.

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5. Claims 1-8 are objected to because of the following informalities: there are multiple grammatical errors in the claims. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 4-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "the entire band". There is insufficient antecedent basis for these limitations in the claim.

Further, claim 4 has different limitations with the claim apparently each dependent on different claims. Therefore the dependency of the claim is not clear.

Claim 5 recites the limitation "Channel multiplex device in claim 1". There is insufficient antecedent basis for these limitations in the claim.

Claim 6 recites the limitation "channel de-/multiplexing device", "the first stage", "the entire band of claim 1", "the second stage", "the trunk port" and "the small optical path between the first and the second stage". There is insufficient antecedent basis for these limitations in the claim.

Further, claim 6 mentions dependency to both claims 1 and 5. Therefore the dependency of the claim is unclear.

Claim 7 recites a limitation that is described within the claim as "conventional". Therefore, it's not clear what the applicant's limitation of the claimed invention is, since a disclosure of a feature as conventional means that the feature was well known in the art at the

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time of the invention; there the feature would have been obvious to one of ordinary skill in the art at the time of the invention.

Claim 8 recites the limitation "the band and bandwidth of each semiconductor laser amplifier in claim 6" and "its small band". There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

9. Claims 1 and 5 are rejected under 35 U.S.C. 102(a) as being anticipated by Das et al. (http://www.ofsoptics.com/resources/documents/coarsewdm_20gb.pdf, August 2001).

Regarding claim 1, Das et al. disclose an optical CWDM system of large capacity, comprising: A plurality of optical transmitters to send data from local terminal to remote site (fig. 2, elements Node TX); A plurality of optical receiving port from remote sites (fig. 2, elements Node RX); Trunk output port linked to remote node of network (fig. 2, element Secondary Hub); Trunk input port linked from remote node of network (fig. 2, element Primary Hub); Multiplexing device to combine multiple local optical channels into the trunk output port (fig. 2, element 8x1 Mux); De-multiplex device to extract each channel in trunk input port to its channel port (fig. 2, element 1x8 DeMux) (see also page 850, Introduction section and page 851, Generic CWDM Architecture section);

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Regarding claim 5, Das et al. disclose that the channel multiplex device in claim 1 has the same construct as de-multiplex device but the light traveling direction is reverse (fig. 2 and page 852, 1st full paragraph).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Das et al. (http://www.ofsoptics.com/resources/documents/coarsewdm_20gb.pdf, August 2001) in view of Eichenbaum et al. (http://www.ofsoptics.com/resources/documents/economics_wdm_20.pdf, August 2001).

Regarding claim 2, Das et al. disclose that there is a laser in each transmitter of claim 1, and serves as a carrier for data transmission (page 850, Introduction section), but does not disclose that the laser is a semiconductor DFB laser. Eichenbaum et al. disclose a CWDM system with the same waveband and wavelength spacing as that of the Das et al. system, and disclose using cost efficient semiconductor DFB source lasers that do not require cooling (page 1444, Introduction section, 2nd paragraph). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the DFB source lasers in the system of Das et al. due to their cost efficiency and lack of need for cooling, as taught by Eichenbaum et al.

Regarding claim 3, the combination of Das et al. and Eichenbaum et al. disclose the system of claim 2, and that all laser units are without temperature control (Eichenbaum et al.: page 1444, Introduction section, 2nd paragraph).

12. Claims 4, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Das et al. (http://www.ofsoptics.com/resources/documents/coarsewdm_20gb.pdf, August 2001) in view of Chraplyvy et al. (US Patent No. 6205268).

Regarding claim 4, Das et al. disclose the system of claim 1, but do not disclose specifically that the wavelength coverage for the entire band is from 1300 to 1700 nm. However, Das et al. do disclose CWDM use of the "entire optical spectrum" of an optical fiber, specifically 1260nm to 1625nm (page 1444, Abstract paragraph). It would have been an obvious design choice to one of ordinary skill in the art at the time of the invention that the "entire optical spectrum" could have alternatively been 1300 to 1700 nm, as the range that defines the "entire optical spectrum" is an inherent characteristic of the optical fiber used. Das et al. disclose that each laser has a unique wavelength in this range and the space for any two adjacent channels is 20 nm. Das et al. do not disclose the space for any two adjacent channels is 6 nm. Chraplyvy et al. disclose a broad spectrum WDM system with wavelength spacing of 0.8 nm, but that the spacing may be greater or smaller depending on the network designer's considerations of amplifier bandwidth and availability and/or cost of components such as multiplexers and demultiplexers (col. 4, lines 16-21). It would have been obvious to one of ordinary skill in the art at the time of the invention to use channel spacing of 6 nm if the network design budget and availability allowed for this spacing, as opposed to the wider spacing of Das et al., in order to provide the advantage of more channels and higher overall transmission bandwidth for the WDM system.

Regarding claim 6, Das et al. disclose the system of claim 5 but do not disclose first and second stages of multiplexing and demultiplexing, where with laser amplifiers between the first and second stages. Chraplyvy et al. disclose a WDM system with multiple stages of

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multiplexing (fig. 1), with different amplifier types between the multiplex stages for amplifying the different wavelength ranges in the optical spectrum (col. 4, line 66 to col. 5, line 2), and the option of semiconductor amplifiers in between each stage (col. 5, lines 11-14). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the cascaded multiplex/amplify/multiplex teaching of Chraplyvy et al. in the system of Das et al., in order to provide efficient choice of amplifiers for each wavelength range in the spectrum (for example, EDFA amplifiers are more cost effective than Raman amplifiers, but are primarily limited to the 1550 nm range).

Regarding claim 8, the combination of Das et al. and Chraplyvy et al. disclose that the band and bandwidth of each semiconductor laser amplifier in claim 6 is optimized and selected such that each amplifier for its small band covers the amplification for this small band (Chraplyvy et al.: col. 4, line 66 to col. 5, line 2).

Conclusion

13. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

Hanh Phan
Hanh Phan
Primary Examiner
11/26/04